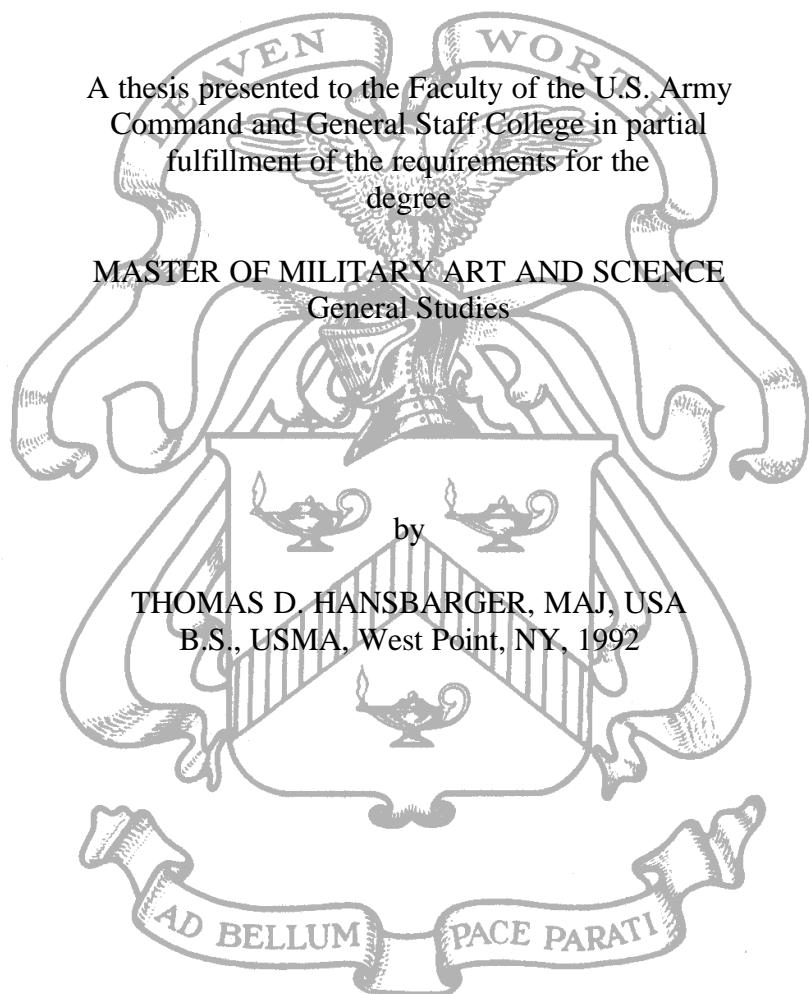


EFFECTS-BASED TARGETING: APPLICATION IN OPERATION DESERT
STORM AND OPERATION IRAQI FREEDOM



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MASTER OF MILITARY ART AND SCIENCE

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

EFFECTS-BASED TARGETING: APPLICATION IN OPERATION DESERT STORM AND OPERATION IRAQI FREEDOM, by Major Thomas D. Hansbarger, 67 pages.

Throughout history, targeting in military operations has been a critical function in achieving victory on the battlefield. The process of identifying, prioritizing, and attacking targets in accordance with the commander's intent becomes even more critical in today's complex operational environment. The United States military must be able to apply effects-based targeting to capitalize on improved capabilities in operational fires and application of national resources against a dynamic, adapting enemy. This evolving method of conducting operations focuses on creating specific effects rather than focusing on military objectives.

Currently, there are many different opinions within the military on the definition, application, and feasibility of effects-based targeting. This thesis defines and identifies effects-based concepts and analyzes their application during Operation Desert Storm and Operation Iraqi Freedom. Applying these developing concepts to recent operations will help create a better understanding of effects-based targeting and assist leaders in conducting operations in a complex environment.

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ACRONYMS

ARCENT	United States Army Central Command
BDA	Battle Damage Assessment
BOS	Battlefield Operating Systems
CENTAF	United States Air Force Central Command
CENTCOM	United States Central Command
CFACC	Coalition Forces Air Component Command
CFLCC	Coalition Forces Land Component Command
C2	Command and Control
DOCC	Deep Operations Coordination Cell
EBO	Effects-Based Operations
EBT	Effects-Based Targeting
EFST	Essential Fire Support Task
EIOT	Essential Information Operations Task
FECC	Fires and Effects Coordination Cell
FM	Field Manual
JFC	Joint Force Commander
JP	Joint Publication
KTO	Kuwaiti Theater of Operations
MOE	Measure of Effectiveness
ODS	Operation Desert Storm
OIF	Operation Iraqi Freedom
RA	Regular Army
RGFC	Republican Guard Forces Command

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CHAPTER 1

INTRODUCTION

Background

Throughout history, targeting in military operations has been a critical function in achieving victory on the battlefield. The process of identifying and prioritizing targets and applying resources against them has become more significant in recent history. In today's operational environment, improved operational fires capabilities and the presence of a dynamic, adapting enemy increase the importance of targeting. Today's Army has experienced vast improvements in the range, capabilities, and accuracy of weapon and target acquisition systems that make their potential effects more lethal than ever before (FM 3-93 (Draft) 2003, 9-49). Additionally, the Army faces an enemy that accounts for the United States' (US) strengths and weaknesses and operates in a nonlinear, asymmetric method to offset any US advantages (FM 3-0 2001, 1-8). The threat to the US has shifted from large, conventional combat formations to a more adaptive, regional opponent, which has impacted the Army's concept of targeting. The characteristics of the future battlefield will challenge the joint force and service component commander's ability to efficiently and effectively employ limited numbers of sophisticated acquisition and attack systems against a diverse target array (FM 3-60 Final Coordinating Draft n.d., 1-1).

The Army's targeting process has evolved over the past decade due to the changing operational environment. The adjustment that arguably has had the biggest impact on the targeting process is the concept of effects-based targeting (EBT). EBT is a method of conceptualizing the targeting process that focuses on achieving a certain effect

on the enemy as opposed to simply attacking to destroy targets. The principle of EBT is that attacking a specific target may have functional, systemic, or psychological effects beyond those created by destroying the target (Air Combat Command 2002, 2). EBT creates coordinated and synergistic operations that will produce a desired effect on the battlefield (Batschelet 2002). Army officers involved in the targeting process often talk about determining the effects they want to achieve, but have they truly grasped the concept of EBT?

This thesis identifies the evolving concepts and principles of EBT and examines their application to US military operations. EBT principles will be applied to the selection of targeting tasks that support ground combat operations during Operation Desert Storm (ODS) and Operation Iraqi Freedom (OIF).

Problem Statement

The Army operates in an extremely complex operational environment that is continually changing. In order to maintain relevance, the Army must adapt through changes. One result of these changes is EBT--a targeting concept that is not fully understood throughout the Army. With evolving technology and the increasing synchronization requirements on the battlefield, EBT may provide the Army with a concept that helps it achieve success on the battlefield.

Research Questions

Focusing on the following questions will assist in adequately assessing the application of EBT concepts during Operations Desert Storm and Iraqi Freedom:

Primary Research Question: Was the concept of EBT applied to the Army targeting process used during Operation Desert Storm and Operation Iraqi Freedom?

Secondary Question 1: How were the targeting objectives and tasks developed?

Tertiary Question 1-1: To what extent were targeting tasks directly linked, or nested, with the Joint Force Commander's (JFC) objectives?

Tertiary Question 1-2: Were the targeting tasks developed using a strategy-to-task method?

Secondary Question 2: What was the focus of the targeting tasks--accomplishing an objective or achieving a specific effect?

Tertiary Question 2-1: To what extent was analysis conducted on the effects a targeting task would achieve?

Tertiary Question 2-2: To what extent was analysis conducted on the second or third order effects of a targeting task and how they would impact an objective?

Secondary Question 3: How were the results of the targeting tasks assessed?

Tertiary Question 3-1: Did each targeting task have an associated method to determine success?

Tertiary Question 3-2: What was the focus of the method used to determine the success of a targeting task?

Significance

Effects-based operations (EBO) are becoming an increasingly important topic within the Joint Forces Command, the US Air Force, the US Army, and professional defense organizations. Employing an effects-based concept in warfighting may significantly alter the way the United States wages war, to include changes in the roles of military forces and the organizational structure of those forces. The integration of EBT into the Army targeting process is an issue being examined and may significantly impact

the Army's targeting process at the operational and tactical levels of war. Additionally, joint and Air Force targeting doctrine are beginning to include EBO concepts and, in order for Army staffs to remain relevant and informed on joint procedures, they must be able to operate with an understanding of EBO.

Assumptions

This thesis assumes the reader has a general understanding of the US Army and the joint targeting processes and methodologies. Additionally, this thesis assumes the reader has basic knowledge of the circumstances and general execution of ODS and OIF.

Limitations

The model used to describe EBO is based on emerging concepts and applications to military operations as of 1 March 2004. It does not include doctrine produced after this date. Currently, there is a lack of doctrinal publications that address the application of EBT. Effects-based concepts and their integration into military operations will continue to evolve and, when published in doctrine, may be different than what is presented in this thesis.

Most applications of EBO focus on synchronizing the employment of all instruments of national power to achieve a strategic objective or goal. This thesis focuses on the application of military power to achieve a specific military objective and addresses only the operational level of war.

Finally, this thesis examines the application of EBT during ODS and OIF only. Effects-based concepts can be found in military operations throughout history; however, they began to be developed into doctrine during ODS. The analysis focuses on these two

operations in order to demonstrate the evolution of EBT from the time it began being introduced as a doctrinal concept to the most recent US military operation.

Delimitations

This thesis does not focus on the process of identifying strategic objectives, but on evaluating how the Army's targeting process develops and prioritizes tasks to support those objectives. It does not attempt to determine if the objectives or targeting tasks are adequate, but focuses on the process used to determine those objectives and tasks. Additionally, this thesis does not address or analyze the format or effectiveness of the joint coordination targeting board, but may apply doctrine that applies to the joint targeting process.

Definitions

EBO and EBT are very immature and nebulous concepts and, therefore, can be difficult to define. EBO differs from EBT in terms of scope. EBO focuses on achieving effects through the application of all resources, including maneuver; while EBT focuses applying effects-based concepts only to the targeting process. Current joint doctrine provides the most complete information for defining the targeting related terms used throughout this thesis. Joint definitions are used throughout as opposed to Army doctrinal definitions because the joint terminology is more recent and will invariably be incorporated into Army doctrine. In some areas, specifically pertaining to effects-based concepts, joint and Army doctrinal manuals are not yet published. In these situations, definitions outlined in nondoctrinal publications will be used. The definitions of the terms used throughout this thesis follow.

Direct effect. “The immediate, first order consequence of a military action unaltered by intervening events or mechanisms” (JP 3-60 2002, I-6). Direct effects are usually immediate, easy to recognize, and easy to measure (JP 3-60 2002, I-6; Mann, Endersby, and Searle 2001). They include physical, functional, and psychological and can be collateral in nature (Mann, Endersby, and Searle 2001).

Effect. “The physical, functional, or psychological outcome, event, or consequence that results from specific military or non-military actions” (USJFCOM 2001b, 5). It is important to note that effects include all results of actions, including the undesired and unintended (USJFCOM 2001b, 7). There are two types of targeting effects identified in joint doctrine: direct and indirect.

Effects-Based Operations. A process for obtaining a specific, desired outcome or effect on the enemy by identifying and engaging an enemy’s vulnerabilities through a synergistic and cumulative application of the full range of military capabilities consistent with the commander’s intent (USJFCOM 2001b, 5; Batschelet 2002, 3).

Effects-Based Targeting. The process of identifying and prioritizing the effects a commander must achieve, focusing on the enemy’s vulnerabilities and strengths, and applying adequate and applicable resources to achieve those effects that contribute directly to accomplishing the stated military objectives, in accordance with the commander’s intent. (JP 3-60 2002, I-5; USJFCOM 2001b, 5)

Indirect effect. “The delayed and/or displaced second- and third-order consequences of military action” (JP 3-60 2002, I-6). Indirect effects are often delayed, difficult to recognize, and difficult to measure. They consist of functional, systemic, and

psychological effects and can be collateral, cascading, or cumulative in nature (JP 3-60 2002, I-6; Mann, Endersby, and Searle 2001).

Target. “An area, complex, installation, force, equipment, capability, function, or behavior identified for possible action to support the commander’s objectives, guidance, and intent” (JP 3-60 2002, GL-10).

Targeting. “The process of selecting and prioritizing targets and matching the appropriate response to them, taking account of operational requirements and capabilities.” Additionally, “effective targeting is the ability to identify the targeting options, both lethal and nonlethal, to achieve the desired effects that will support the commander’s objectives” (JP 3-60 2002, I-5).

Task. A specific action assigned to a military unit or individual. As implied from this definition, a given task will generate an action performed by an organization or individual.

Because it is still an evolving concept, the principles of EBT are not concrete. USJFCOM is taking the lead in translating these concepts into doctrine; however, many different opinions on the development and application of these concepts exist throughout the joint community. The next chapter examines the status of joint and Army doctrine in regards to EBT and identifies the most prevalent emerging concepts in EBO.

CHAPTER 2

LITERATURE REVIEW

The concept of EBT is nebulous and is still being defined in military doctrine and by today's effects-based theorists. This chapter examines the evolution of the Army and joint targeting doctrine used during ODS and OIF. Additionally, this chapter reviews the professional articles and academic works of key authors on EBO and EBT. Based on these looming concepts, the chapter builds an effects-based operational model. The chapter concludes with a review of the significant sources used to examine the targeting process during each conflict.

Army Targeting Doctrine

There have been very few changes in the Army's targeting doctrine from ODS to OIF. The targeting doctrine used during ODS was contained in Field Manual (FM) 6-20-10, *Tactics, Techniques, and Procedures for the Targeting Process*, dated March 1990. This manual introduced the concept of the targeting team that integrated intelligence and electronic warfare and nonlethal fires into the targeting process. The manual outlined the targeting methodology with the steps of "decide, detect, and deliver." During ODS, the Army realized that there was not enough emphasis on assessing the damage of attacks and added the "assess" step to develop the "decide, detect, deliver, and assess" methodology, which was incorporated into later editions of FM 6-20-10. The Army began OIF using the this methodology as outlined in the May 1996 version of FM 6-20-10, which also added considerations for targeting in a joint environment.

Joint Targeting Doctrine

Unlike Army targeting doctrine, joint doctrine has significantly evolved over the past ten years. From lessons learned during ODS and realizing the increasing requirement to conduct joint operations, USJFCOM has placed increased emphasis on developing and publishing joint doctrinal manuals. Prior to ODS, joint doctrine was virtually nonexistent. For example, the military library of joint doctrine consisted of three manuals published by the Armed Forces Staff College (AFSC) in the early 1980s. AFSC Publication 2, *Service Warfighting Philosophy and Synchronization of Joint Forces*, briefly addressed joint fires and targeting and was the joint publication used during ODS. AFSC Pub 2 does not address joint targeting in any amount of detail--it recommends the JFC establish a joint targeting coordination board and emphasizes the importance of integrating each service components' fires capabilities, to include electronic warfare (AFSC 1992). As a result of the Goldwater-Nichols Department of Defense Reorganization Act of 1986 and subsequent reorganization of the joint staff, the Chairman of the Joint Chiefs of Staff developed the Joint Doctrine Division under the Operational Plans and Interoperability Directorate, J-7 (USJFCOM 2001a, 91). At present, there are more than ninety joint doctrinal publications, to include Joint Publication (JP) 3-60, *Joint Doctrine for Targeting*, published in January 2002.

JP 3-60 is the most current doctrinal manual that focuses on the targeting process and the first joint publication dedicated to targeting. Although it is focused on describing the joint targeting process, it also addresses subordinate component involvement in this process and dedicates an appendix to describing each component's targeting methodology and how they correlate to the joint process. JP 3-60 is the first manual that

addresses EBT and describes how this concept is integrated into the joint targeting process.

The Army and joint targeting publications played a significant role in examining the targeting processes that were used during Operations Desert Storm and Iraqi Freedom. These doctrinal publications have evolved during the time period between the two conflicts; however, they are lacking a method to incorporate EBT into the targeting process. While EBT is beginning to surface in military doctrine, military journals, professional publications, and academic papers provide the most pertinent information on the subject.

Effects-Based Operations

There have been numerous professional articles produced on EBO since the conclusion of ODS; however, the two authors who have contributed to the emphasis of this topic are retired Air Force Colonel John A. Warden and Air Force Major General David A. Deptula. Colonel Warden was on the Central Air Force (CENTAF) planning staff during ODS and has published many papers and books on analysis of an adversary's strategic center of gravity and system to trace the target effects to destruction of that center of gravity. His models and concepts set the stage for further developments in EBO.

Major General Deptula was instrumental in developing the most current concepts of EBO. Along with Colonel Warden, he also served on the CENTAF planning staff during ODS. Major General Deptula also served as the director of the Combined Air Operations Center for Operation Enduring Freedom and the director of Plans and Programs for Headquarters Air Combat Command at Langley Air Force Base, Virginia. The documents that contributed the most to this thesis are his publications through the

Aerospace Education Foundation, *Effects-Based Operations: Change in the Nature of Warfare and Firing for Effect*. These two works examine the concept of EBO and its impact on the conduct of future conflicts and organizational changes within the military.

Air Combat Command, the organization responsible for providing organized, trained, and equipped combat air forces to warfighting commands, published a white paper that describes the EBO methodology and how it contributes to the operational planning process. The white paper was published by Major General Deptula's plans and programs office and was an important resource in examining how EBO can be integrated into future Army and joint targeting doctrine. Subsequently, USJFCOM produced an EBO white paper; however, the majority of the concepts were contained in the Air Combat Command document.

Effects-Based Operations Concepts

To best understand the most recent concepts in EBO, it is helpful to develop a graphical representation based on the current literature on the subject. Simple definitions of EBO and EBT do not sufficiently illustrate their concepts. This section provides an effects-based model for targeting based on existing concepts contained in the white papers and other documents discussed above.

EBO is not a methodology or a specific process, but a way to think about military operations. USJFCOM states that effects-based thinking is an evolution in current objectives-based thinking (USJFCOM 2003, 7). “An objectives-based methodology links strategic objectives to proposed actions through a process of logic and historical analysis and refine them to operational plans through a strategy-to-task approach” (Effects-Based Operations Panel 2003, 2). Objectives-based methodology focuses on the relationship of

objectives and strategies at each level of war and demonstrates how the strategy, along with the commander's guidance, at each level determines the objectives at the next lower level of war. As illustrated in figure 1, this process begins with clearly defined national or strategic objectives that are developed into a strategy to accomplish that objective based on the commander's guidance. This process continues at each level and will determine specific targeting tasks.

The strategy, or method to accomplish an objective, at each level of command identifies specific tasks to accomplish. Joint doctrine defines strategy as, "the art and science of developing and employing instruments of national power in a synchronized and integrated fashion to achieve theater, national, and/or multinational objectives" (JP 1-02 2004). The conduct of these tasks results in actions that directly support the accomplishment of the commander's objectives and ultimately the national objectives. The focus of objectives-based operations is on determining the tasks that contribute to the accomplishment of an objective. This is where objectives-based and effects-based concepts begin to differ.

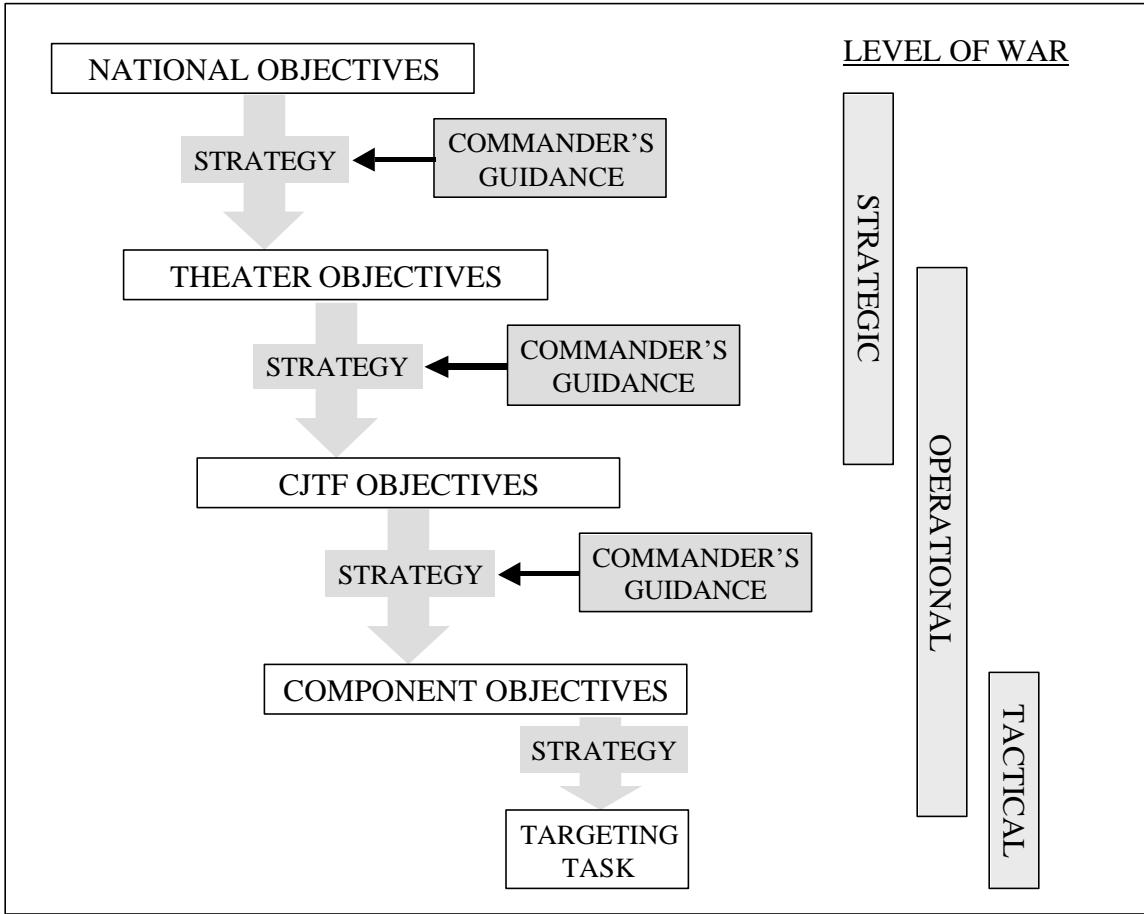


Figure 1. Strategy to Task

Before examining the differences between effects-based and objectives-based operations, it is helpful to examine the definitions of an objective versus an effect. A simple definition of objective that is helpful is “the desired results;” however, joint doctrine offers two definitions. Joint doctrine defines objective as, “The clearly defined, decisive, and attainable goals towards which every military operation should be directed” and “the broad goals of a military operation and the specific target of an action taken (such as a terrain feature or a specific enemy force)” (JP 1-02 2004). Within the context of this thesis the first definition is more applicable. As defined in the first chapter, an effect

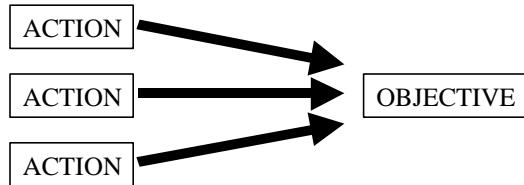
is, “the physical, functional, or psychological outcome, event, or consequence that results from specific military or non-military actions” (USJFCOM 2001b, 5). It is important to note that effects include all results of actions, including the undesired and unintended (USJFCOM 2001b, 7).

An effects-based methodology builds on the objectives-based concept. Rather than an action itself directly influencing an objective, the effects-based concepts states that there is a causal linkage triggered by the action that achieves an effect (Effects-Based Operations Panel 2003, 4). EBO focuses on the analysis of the causal linkages through which actions produce effects (USJFCOM 2003, 8). Each action may create more than one effect, and each effect may or may not contribute to the accomplishment of an objective. EBO allows planners to conceptualize the effects an action will create and if those effects will contribute to achieving the military objective. The 2001 USJFCOM EBO white paper, *A Concept Framework for Effects-based Operations*, explains:

It is the relevance of the causal linkages with respect to the current situation that determines whether or not the action taken will achieve the desired effects. From a planner’s perspective, causal linkages help to understand why a proposed action could be expected to produce a desired effect given the current circumstances. (USJFCOM 2001b, 8)

As illustrated in figure 2, the primary difference between objectives-based and effects-based operations is that objectives-based operations focus on *identifying the actions* that contribute to an objective, while effects-based operations focus on identifying effects an action will achieve.

OBJECTIVES-BASED OPERATIONS: Focus on ACTIONS that achieve an OBJECTIVE.



EFFECTS-BASED OPERATIONS: Focus on EFFECTS and the CAUSAL LINKAGES of ACTIONS.

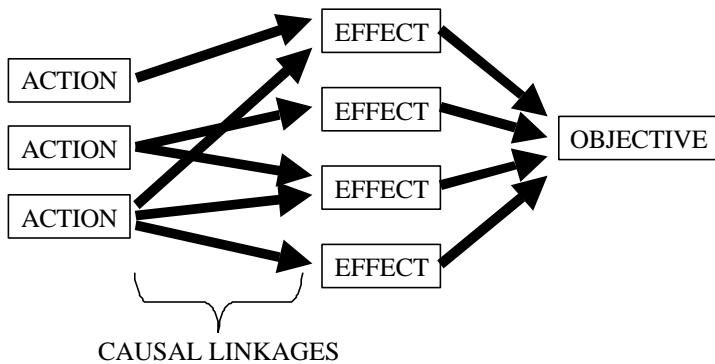


Figure 2. Objectives vs. Effects-based Models

Source: USJFCOM, A Concept Framework for Effects-based Operations, White Paper Version 1.0(Washington, D.C.: Government Printing Office, October 2001), 9

Understanding Effects

Figure 2 illustrates objectives-based and effects-based models; however, it does not address the complexity of effects. This model depicts the direct effects of an action but it does not address the type or nature of effects or the relation of indirect effects. Joint targeting doctrine identifies two types of targeting effects: direct and indirect. Direct, or first order, effects consist of physical, functional, and psychological and can be collateral in nature. Indirect, or second and third order, effects consist of functional, systemic, and

psychological effects and can be collateral, cascading or cumulative in nature (JP 3-60 2002, I-6; Mann, Endersby, and Searle 2001). Tables 1 and 2 summarize these terms.

Table 1. Types of Effects

Physical	“The effects created by direct impact through physical alteration of the object or system targeted by the application of military action.”
Functional	“The direct or indirect effects of an action on the ability of a target to function properly.”
Psychological	“An action’s impact on the mental domain of a target audience.”
Systemic	“Indirect effects on the operation of a specific system or systems.”

Source: USJFCOM, JP 3-60, *Joint Doctrine for Targeting* (Washington, D.C.: Government Printing Office, January 2002), I-6

With these definitions and an understanding of the relationships between actions, causal linkages, effects, and military objectives, it is possible to expand the operations-based model depicted in figure 2. An effects-based model must incorporate effects contributing to the desired outcome, or objective, and effects contributing to any undesired outcomes. Figure 3 is a graphical representation of a more complete effects-based model that combines the most current concepts and definitions.

Table 2. Nature of Effects

Collateral	“Outcomes that result when something occurs other than intended. They may be either positive or negative as regards the original intent.”
Cascading	“Indirect effects that ripple through an enemy system, often influencing other systems as well. Typically, these effects can influence nodes critical to multiple systems. The effects may cascade upward or downward; however, most often this cascading of indirect effects flows from higher to lower levels of operations.”
Cumulative	“The effects resulting from the aggregate of many direct or indirect effects. They may occur at the same level or at different levels of employment as one achieves the contributing lower-order effects.”

Source: USJFCOM, JP 3-60, *Joint Doctrine for Targeting* (Washington, D.C.: Government Printing Office, January 2002), I-7

Operation Desert Storm

There are numerous books, publications, and reports on the conduct and planning of ODS that contributed to my research and assessment of the targeting process during the conflict. The books that proved most useful in examining the targeting process at the Central Command (CENTCOM) and, to some extent, the Army Central Command (ARCENT) headquarters were *Crusade* by Rick Atkinson, *Certain Victory* by Brigadier General (Retired) Robert H. Scales, and *Lucky War* by Richard M. Swain. These books briefly discuss the general structure of the targeting process, but mostly at the CENTCOM level. *Lucky War* provides some good insights in ARCENT’s role in the campaign targeting process and discusses some of ARCENT’s targeting procedures

specifically. All three books take an in-depth look at the campaign plan and, to a lesser extent, the CENTCOM targeting objectives, but, with the exception of *Lucky War*, they do not sufficiently discuss targeting at the ARCENT headquarters.

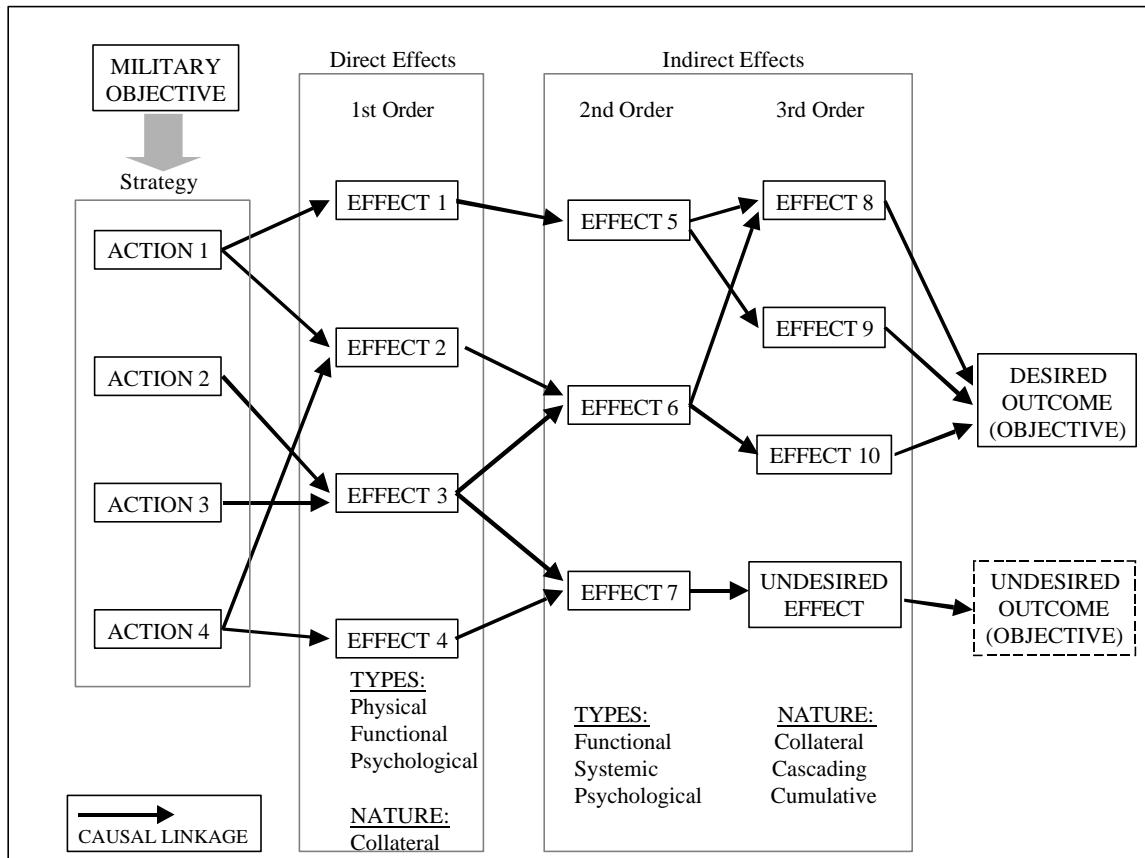


Figure 3. Effects-Based Model

In contrast to books written about the entire campaign, the operations orders, fragmentary orders, and after action reviews produced by the VII (US) Corps Headquarters were very specific in identifying targeting objectives and presenting products used during and produced by the targeting process. Most of these documents pertain to Iraqi enemy forces at the tactical level; however, they closely relate to the

operational level of war. The operational documents that ARCENT produced were focused more toward logistical operations and not toward targeting products used or produced by the ARCENT headquarters.

The sources that were most useful in attempting to evaluate the effectiveness of the targeting process were the *Gulf War Air Power Survey (GWAPS)* and *Conduct of the Persian Gulf War*. The *GWAPS* was commissioned to review all aspects of air warfare during the campaign and produced a five-volume, analytical report on topics, such as the planning, conduct of operations, the effects of the air campaign, command and control, and logistics during Operations Desert Shield and Desert Storm. The reports that are most relevant to this thesis are “Operations” and “Effects and Effectiveness,” both contained in Volume II. *GWAPS* provided detailed analysis on how CENTAF conducted their targeting process and the how they determined the effectiveness of the air campaign. Additionally, it provides insight on the importance of developing a method to assess effectiveness of air operations and discusses the potential application of EBO.

Conduct of the Persian Gulf War was written as a final report to Congress and provides an in-depth history from the Iraqi invasion into Kuwait to the conclusion of the ground campaign. The report goes into great detail on the planning and conduct of the ground campaign and provides numerous lessons learned. While this is an incredible reference for ODS, it provides limited information on the targeting process. However, *Conduct of the Persian Gulf War* was very useful in assessing the effectiveness of air combat operations and, to some extent, ground operations. Specifically, the report identified how the Army attempted to determine the results of air strikes against Iraqi ground forces.

Operation Iraqi Freedom

While OIF is still in progress and many of the planning documents remain classified, there are a limited number of resources that contain the level of specificity to be relevant to this thesis. The information on OIF came from three primary sources. The first, and most informational, was the unclassified briefing presented by the Coalition Land Forces Component Command (CFLCC) at the 2003 Field Artillery and Joint Fires Conference at Fort Sill, Oklahoma. This presentation outlined the development of effects objectives, essential fire support tasks, and essential information operations tasks.

The next document that was very useful was the CFLCC Deep Operations Coordination Cell Standard Operating Procedure (SOP). This SOP provided detailed information on the targeting procedures used by CFLCC. This document was most beneficial in examining the combat assessment process used during OIF.

The final source is author's personal experience while assigned to CFLCC at Camp Doha, Kuwait and Baghdad, Iraq from October 2002 to June 2003. The author was able to witness the development of CFLCC's effects objectives, attend the daily CFLCC effects board and Central Command's targeting coordination board, and interact with staff on a daily basis. The personal notes and experiences during the planning and execution of OIF provide keen insight into the CFLCC targeting process as it evolved.

The integration of EBO has recently become a very popular subject. Writers and students of Air Force theory and doctrine continue to dominate the publications on the subject; however, it is a very prevalent topic within professional Army institutions, specifically as EBO relates to targeting and conducting ground combat operations. Due to the wide range of EBT concepts and the lack of integration into doctrine, a specific

method to determine their application in military operations is necessary. The next chapter describes this methodology in detail.

CHAPTER 3

METHODOLOGY

EBT is a broad subject with varying interpretations throughout the joint community; therefore, it is important to establish clear criteria when evaluating the application of effects-based concepts in specific operations. As outlined in the previous chapters, EBT is the process of identifying and prioritizing the effects a commander must achieve, focusing on the enemy's vulnerabilities and strengths, and applying adequate and applicable resources to achieve those effects that contribute directly to accomplishing the stated military objectives, in accordance with the commander's intent. This chapter outlines the approach used to determine how effectively EBT principles were used during Operations Desert Storm and Iraqi Freedom.

The application of EBT concepts during ODS and OIF were examined using two principles. These principles were the development of targeting tasks and the method of determining success of a targeting task. Development of targeting tasks in EBT concepts included two separate issues: ensuring each task supports the JFC's objectives and focusing the task on achieving an effect rather than accomplishing an objective. Table 3 provides the list of research questions related to each principle and will be used to determine the application of EBT during each conflict.

Table 3. Analyzing EBT Principles

DEVELOPMENT OF TARGETING TASKS	Desert Storm	Iraqi Freedom
1. Do the targeting tasks support the JFC's objectives?		
1-1. Are the targeting tasks directly linked (nested) with the JFC's objectives?		
1-2. Were the targeting tasks developed using a strategy-to-task method?		
2. Were targeting tasks focused on accomplishing an objective or achieving a specific effect?		
2-1. Was analysis conducted on what effects (negative effects) a targeting task would achieve?		
2-2. Was analysis conducted on the second or third order effects of a targeting task and how they would impact an objective?		
METHOD OF ASSESSMENT		
3. How were the results of the targeting tasks assessed?		
3-1. Did each targeting task have an associated method to determine success?		
3-2. Was the method used to determine success focused on the desired effect or destruction of the enemy?		

In the development of targeting tasks, each task should support the JFC or theater objectives. This is conducted through a strategy-to-task method and ensures that tactical actions are nested with the overall military objectives. The second principle determines if the targeting tasks are focused on accomplishing an objective or achieving an effect. Using EBT concepts, the development of targeting tasks should consider the analysis of all potential effects that may result. The final criteria in determining if the targeting staffs

used an effects-based approach will be in the assessment of their targeting objectives. The methods in assessing the success or failure of a targeting objective can be a key indicator if planners used an effects-based approach. It is very evident if the criteria for success are focused on the destruction of enemy combat power or if they are focused on physical, functional, or psychological effects on the enemy. Analyzing both operations using these criteria will determine if an effects-based approach to targeting was used and the contribution it made to the effectiveness of the Army targeting process.

To answer the primary research question, the targeting process used during each operation was effects-based if it met all of these criteria. It is possible to apply some principles of EBT in a particular operation; however, if any of these criteria were lacking, the process was not truly an effects-based approach according to the most current concepts. The next chapter takes an in-depth look at the targeting process used during ODS and OIF and analyzes the application of these EBT principles.

CHAPTER 4

ANALYSIS

This chapter analyzes two different operations to determine the application of EBT concepts. The EBT principles outlined in the previous chapter will be used to determine if either operation applied effects-based concepts. The chapter will first examine the application of EBT principles during Operations Desert Storm and then OIF. After examining each principle of EBT, an assessment on the extent of the application of EBT principles will be made.

Operation Desert Storm

Development of Targeting Tasks

As described in chapters 2 and 3, an EBT concept links targeting tasks to military objectives and ultimately strategic objectives. Similar to objectives-based operations, effects-based operations ensure the relationship of objectives at each level of war support the objectives at the next higher level. This process begins with clearly defined national or strategic objectives that, based on the Commander-in-Chief's guidance and intent, are developed into a set of military actions or tasks. Those strategic actions then define the operational-level objectives, and the operational actions or tasks define the tactical objectives. This process ensures the actions at the lowest level of war adequately support the overall strategic or national objectives and is inherent in objectives-based operations and effects-based operations.

Support of JFC's Objectives

After Saddam Hussein invaded Kuwait in 1990, the United States developed a strategic aim that included the expulsion of Iraqi forces from Kuwait, restoring the

legitimate government of Kuwait, and maintaining the flow of oil from the region. The United States would accomplish these aims through the application of political, economic, and military pressure to isolate and contain Iraq (Craft 1992, 4). The military objectives developed to accomplish this were to deter further aggression in the region, defend the Arabian Peninsula, maintain free access to petroleum resources in the region, protect the lives and property of coalition citizens in the region, and to enforce United Nations sanctions (Craft 1992, 7-8). These military objectives were incorporated into the planning and execution of Operation Desert Shield.

Over a period of time, it became evident that these pressures were not effective in achieving the US strategic aim in a timely manner and a more direct use of military force would be required to expel Iraqi troops from Kuwait. This effort developed into Operation Desert Storm, which included the following strategic military objectives:

1. Withdrawal of Iraqi forces from Kuwait
2. Restoration of Kuwait's sovereignty
3. Destruction of Iraqi capability to produce and employ weapons of mass destruction
4. Destruction of Iraq's offensive capabilities. (Scales 1997, 111)

Based on these strategic objectives and guidance from senior military leaders, CENTCOM developed the following operational objectives for ODS:

1. Destroy Iraqi Air Force and command and control of theatre airspace
2. Destroy Iraqi nuclear, biological, and chemical (NBC) weapons production and storage capability
3. Destroy Iraqi ballistic missile capability
4. Destroy Iraqi theater command and control system
5. Isolate the Kuwaiti theater of operations (KTO) to cut off logistical support to Iraq
6. Destroy the Republican Guard Force Corps (RGFC) deployed in theater. (Craft 1992, 9)

These operational objectives were to be achieved through the execution of CENTCOM's four-phased campaign plan.

The four phases in CENTCOM's campaign plan included strategic air offensive, destruction of Iraqi air defenses in the KTO, preparation of the battlefield, and the ground invasion (*Gulf War Air Power Survey (GWAPS)* 1993b, 96). Based on the nature of ODS, the CENTCOM campaign plan was initially focused on air operations, with ground operations occurring only in the fourth phase. The objective of the ground invasion was the destruction of the RGFC--one of the operational objectives identified by CENTCOM. Phase III--preparation of the battlefield--constituted the majority of the operational fires that would set the conditions for the ground invasion and will be the focus of my targeting analysis.

In order to destroy the RGFC, CENTCOM developed a very general targeting objective that would "shape the battlefield" for the ensuing ground attack. At the operational level, the targeting objective for ODS was very direct: destroy 50 percent of the Iraqi ground forces (Scales 1997, 176). Specifically, General Schwarzkopf directed CENTAF planners to focus on isolating and annihilating the Republican Guard and destroying the Iraqi artillery in the Kuwaiti Theater of Operations (Scales, 1997, 177). CENTAF would conduct these shaping operations while simultaneously continuing to execute the strategic offensive and the destruction of Iraqi air defense systems. Subordinate corps commanders developed targeting objectives that supported their ground tactical plans, but the general targeting objective that this thesis focuses on is General Schwarzkopf's destruction of 50 percent of the Iraqi ground forces.

CENTAF planners developed targeting objectives to accomplish this overall objective. Their primary objective to shape the battlefield was “Republican Guard Forces in the KTO . . . no longer capable of launching an attack or reinforcing Iraqi forces in Kuwait” (*GWAPS* 1993a, 13). In order to accomplish this, CENTAF planners focused on isolating the RGFC from logistic and military support from Iraq and to degrade the combat capabilities of the RGFC by destroying their armor and artillery (*GWAPS* 1993b, 102). These targeting tasks are focused on achieving specific effects and indicate an effects-based approach to developing targeting tasks; however, the conduct of EBT goes beyond simply phrasing targeting tasks in terms of achieving effects. EBT is a process that analyzes the effects that must be created to accomplish an objective, determines what tasks will create those effects, and further analyzes any additional effects that may occur as a result the targeting tasks.

When comparing the development of the targeting objectives of ODS to the EBT model created in chapters 2 and 3, it is easy to identify that the targeting tasks are directly nested with the JFC’s strategic objectives. It is a straightforward process to follow the connection of this particular task back to the strategic objective that it supports. Based on the nature of the planning of ODS, most tactical tasks will relate directly to a strategic objective in this fashion. This is primarily due to the focused military objectives during this campaign. General Schwarzkopf made this abundantly clear to his ground commanders during a briefing in November 1990 when he stated that the objective of this operation was to destroy the Republican Guard. “The selection and clear articulation of the command’s military objective may well have been Schwarzkopf’s greatest contribution as theater commander” (Swain 1992, 88-89). While this objective was not

focused on achieving specific effects with respect to Republican Guard capabilities, it could be easily translated into targeting tasks to focus on achieving the effects to accomplish the objective. This clear guidance did eliminate ambiguity in the military objective; however, Army planners continued to focus on accomplishing this objective rather than achieving the effects that would facilitate this objective.

Focus of Targeting Tasks

One area that the targeting tasks for this operation did not adhere to the principles of EBT was the focus of the task. The initial CENTAF targeting tasks to prepare the battlefield for ground operations was written to achieve an effect but CENTCOM and ARCENT remained focused on accomplishing an objective--destruction of 50 percent of the Iraqi ground forces (Scales 1997, 176). There was inadequate analysis on the effect that the targeting tasks would achieve and what second and third order effects may result. This is most obvious in the lack of planning and analysis on the psychological impacts of the bombing campaign on the Iraqi defensive forces.

Much has been written on the psychological effect the coalition bombing campaign had on the Iraqi forces; however, this effect was not adequately calculated into the planning of the air campaign and battlefield shaping operations, specifically by the ARCENT staff. At times, Army ground commanders were not satisfied with CENTAF's execution of Phase III--preparation of the battlefield--because the corps commanders were not getting adequate feedback that nominated targets were being destroyed (Scales 1997, 180). Army commander's remained focused on the destruction of 50 percent of Iraqi armored and artillery units and would often re-nominate the destruction of certain units because they could not confirm that they were destroyed (Scales 1997, 183). The

psychological and systemic effects of these attacks did not factor into the number of sorties directed against a particular unit. Had effects-based principles as outlined in this thesis been applied to this operation, the air and ground campaign plans would have factored psychological and systemic effects into the targeting of Iraqi ground forces. To analyze and account for these second and third order effects and determine how they contribute to the accomplishment of the military objectives would have been a more complete application of effects-based principles.

Method of Assessment

The methods in assessing the success or failure of a targeting objective can be a key indicator if planners used an effects-based approach. It is very evident if the criteria for success are focused on the destruction of enemy combat power or if they are focused on physical, functional, psychological, or systemic effects on the enemy. Some of these effects can be very difficult to measure and may be very abstract in nature. Additionally, in an effects-based targeting process the staff must also examine the unintended consequences of achieving a targeting objective.

Assessing the effectiveness of targeting tasks is a critical function that a staff must conduct. It is very probable that certain targeting tasks--or creating certain effects on the battlefield--are tied to a decision the commander must make. The commander must ensure, within his capabilities, that best possible conditions exist in which to conduct operations. His staff must be able to inform him of the current conditions, project the future conditions based on current operations, and make recommendations to the commander. If there is no method to determine the success or failure of targeting task, staff officers will have a very difficult time presenting the status of the battlefield

conditions to the commander. If the staff cannot advise the commander, they and the developed targeting tasks are useless to the commander in making his decision.

The purpose of tracking the targeting effects on enemy ground forces during the air campaign of ODS was to allow General Schwarzkopf to make the decision to begin the ground attack. The CENTCOM Commander felt comfortable with the battlefield conditions that would ensure Coalition success when the Iraqi Army was at 50 percent strength. Based on this targeting guidance, the Army and Air Force planners began targeting specific Iraqi units and vehicles. ARCENT focused its targeting effort on the units to their immediate front--elements of the Iraqi Regular Army and the first units with which they would make contact (Scales 1997, 195). CENTAF focused on the Republican Guard units, based on the determined enemy center of gravity, and other targets that would reduce Iraqi combat capabilities, such as communications and logistics (*GWAPS* 1993b, 124). This difference in targeting priorities led to different methods between the two components of assessing the progress of the targeting effort and became a large point of contention in determining success.

ARCENT's primary means for assessing effectiveness of targeting tasks during ODS was by simple battle damage assessment (BDA) (Scales 1997, 187). Army doctrine defines BDA as, "The timely and accurate estimate of damage resulting from the application of military force, either lethal or nonlethal, against a predetermined objective" (FM 101-5-1 1997, 1-17). Prior to the beginning of ground combat operations, coalition staffs attempted to measure the effectiveness of the attacks on Iraqi ground forces in the Kuwaiti Theater of Operations primarily by reported BDA. These measures did include intangible factors, such as morale; however, this proved to be very difficult resulting in

the primary measures of success to be determined by the number of soldiers, tanks, armored personnel carriers, and artillery pieces that were destroyed (*Conduct of the Persian Gulf War* 1992, 91).

Different methodologies for assessing battle damage evolved during the campaign and became a topic of contention between Air Force and Army staffs. Prior to the execution of ground operations, the focus of BDA was to determine when the Iraqi forces reached 50 percent of their combat effectiveness. However, there was no agreed upon definition of “combat effectiveness” between Army and Air Force staffs. ARCENT attempted to track combat effectiveness by the number of tanks, armored personnel carriers, and artillery pieces destroyed. CENTAF, on the other hand, included attacks on supply depots, communications degradation, soldier physical condition and morale, and destruction of other vehicles (*Conduct of the Persian Gulf War* 1992, 113).

One formula to estimate BDA that greatly contributed to the inter-service conflict was used extensively by ARCENT. The ARCENT Intelligence Section developed a BDA formula that used tanks and artillery pieces as a baseline and counted 50 percent of all A-10 pilot reported kills and all imagery-reported kills as confirmed (Scales 1997, 187). He altered this formula as the campaign progressed to count only one-third of the A-10 pilot reported kills and 50 percent of F-111 and F-15E kills if they were supported by gun video (Scales 1997, 188). This method was obviously not supported by CENTAF and at one point resulted in an ARCENT estimate of the Republican Guard strength at 99 percent while CENTAF estimated the strength as much lower (*GWAPS* 1993b, 263).

CENTAF’s targeting strategy did rely on physically destroying enemy assets; however, they focused on degrading enemy unit effectiveness. For example, each day the

CENTAF Commander, Lieutenant General Charles Horner, issued targeting guidance to his staff. This guidance required the Air Component to “delay and attrit Iraqi forces (focusing on the Republican Guard) by concentrating . . . attacks against POL [Petroleum, Oil, Lubricant] supply vehicles, water supply vehicles, and other portions or other logistics supporting Iraqi forces” (*GWAPS* 1993b, 263). The destruction of these types of logistics targets would potentially have a significant impact on a military organization’s ability to conduct combat operations. This was good progress toward EBT; however, the CENTAF staff did not adequately determine how to measure if the attacks were effective.

Measuring the effectiveness of targeting tasks during ODS was a difficult responsibility that was exacerbated by a lack of a metric to determine progress and eventual success. In most instances, the success of the intense bombing campaign was not recognized until Army units came in contact with Iraqi forces (*Conduct of the Persian Gulf War* 1992, 115). Once contact was made, Coalition forces could determine the Iraqi morale and willingness to fight based on the amount of resistance each element provided. Prior to making contact Coalition forces had minimal indications of which elements would capitulate or surrender, other than an estimated number of combat and logistics vehicles that had been attacked. The lack of developing measures of effectiveness for targeting tasks resulted in an inefficient preparation of the battlefield and could not adequately determine the level of resistance friendly ground forces would encounter. The Coalition forces ensured successful accomplishment of their targeting objectives prior to committing ground forces through the volume, frequency, and duration of air attacks against Iraqi ground forces.

Operation Iraqi Freedom

Development of Targeting Tasks

In all military operations it is important to ensure targeting tasks directly support the military objectives and ultimately strategic objectives. As in ODS, OIF started with clearly defined national or strategic objectives that were developed into a set of military actions or tasks. This process ensured that each targeting task adequately supported the operational and strategic objectives and is examined in detail below.

Support of JFC's Objectives

During OIF, the development of targeting tasks also followed a logical sequence from the strategic objectives to specific tasks. The US strategic aim for OIF included producing a stable Iraq, with its territorial integrity intact; Iraq governed by a broad-based government that renounces WMD development and use and no longer supports terrorism or threatens its neighbors; and a government capable and willing to convince or compel other countries to cease support to terrorists and to deny them access to WMD (USCENTAF 2003, 4). This strategic aim translated into the following strategic military objectives:

1. Destabilize, isolate, and overthrow the Iraqi regime and provide support to a new, broad-based government
2. Destroy Iraqi WMD capability and infrastructure
3. Protect allies and supporters from Iraqi threats and attacks
4. Destroy terrorist networks in Iraq
5. Gather intelligence on global terrorism, detain terrorists and war criminals, and free individuals unjustly detained under the Iraqi regime
6. Support international efforts to set conditions for long-term stability in Iraq and the region. (USCENTAF 2003, 4)

Based on these strategic objectives, CENTCOM developed the following operational military objectives:

1. Defeat or compel capitulation of Iraqi forces
2. Neutralize regime leadership
3. Neutralize Iraqi TBM/WMD delivery systems
4. Control WMD infrastructure
5. Ensure the territorial integrity of Iraq
6. Deploy and posture CFC forces for post-hostility operations, initiating humanitarian assistance operations for the Iraqi people, within capabilities
7. Set military conditions for provisional/permanent government to assume power
8. Maintain international and regional support
9. Neutralize Iraqi regime's command and control (C2) and security forces
10. Gain and maintain air, maritime, and space supremacy. (USCENTAF 2003, 5)

Similar to ODS, the land component commander developed a four-phased campaign to accomplish these operational military objectives. The four phases included setting theater conditions, shaping operations, decisive maneuver, and regime removal/transition (CFLCC 2003a, 1). Phase II--shaping operations--called for the execution of the operational fires that would set the conditions for the ground offensive. The focus of analysis will be on this phase of the operation in order to create a direct comparison with the analysis conducted on Operation Desert Strom.

The CFLCC commander's intent for fires for Phase II--shaping operations--was, "to capitalize on Information Operations synchronized with controlled lethal effects to dissuade military forces from supporting Saddam and his regime, and prevent the use of WMD or regime-initiated catastrophic environmental events" (CFLCC 2003b, 4) The targeting process associated with Phase II involved all components and target nominations from each component were prioritized in accordance with the Coalition Forces Commander's priorities. CFLCC developed their own targeting objectives, which they called effects objectives, and nominated targets to CFACC to support those objectives. The effects objectives for Phase II included the following:

1. Destroy the Iraqi Regional Area Commands Headquarters to deny the enemy the ability to conduct a defense in depth
2. Disrupt the ability of RGFC C2 . . . to conduct coordinated defense or attack south
3. Disrupt the ability of the . . . Iraqi RA Corps' ability to mass fires above battery level
4. Deny . . . RA Corps maneuver the ability to conduct a cohesive defense
5. Disrupt . . . RA Corps ability to C2 maneuver and conduct a cohesive defense. (CFLCC 2003b, 4)

Each of these effects objectives directly supported the ground campaign plan, but also contributed to the accomplishment of the Coalition Forces Commander's strategic objectives.

When comparing the development of targeting tasks during OIF to the EBT principles outlined in chapter three, the processes seem to be very similar. As outlined in figure 1, the targeting objectives developed for Phase II--shaping operations--are directly linked, or nested, with the JFC's strategic objectives. These effects objectives meet the first principle of EBT objective development--they directly support the JFC's objectives.

Focus of Targeting Tasks

The second principle in an EBT objective development process is the focus of the targeting objective. CFLCC's effects objectives are focused on achieving a certain effect (disrupt ability to . . .) as opposed to being focused on merely achieving an objective (destroy command and control, artillery, or armored forces with no specified purpose). These effects objectives essentially create the appropriate effects to facilitate the accomplishment of the operational objectives. For example, one of the CENTCOM Phase II operational objectives was to "disrupt/degrade RGFC C2 and support to regime defense" (CFLCC 2003a, 6). The effects objectives of "disrupt the ability of RGFC C2 . . . to conduct coordinated defense or attack south" and "disrupt . . . RA Corps ability to C2

maneuver and conduct a cohesive defense” created the effects that would directly contribute to accomplishing the operational objective (CFLCC 2003b, 4).

The effects objectives developed by CFLCC did support the JFC’s commander’s objectives, but also identified how they would achieve those effects. Each effects objective was broken into supporting essential fire support tasks (EFSTs) and essential information operations tasks (EIOTs) (CFLCC 2003b, 9). The Deep Operations Coordination Cell, the Information Operations staff and the Intelligence section analyzed the EFSTs and EIOTs and determined the how to accomplish each task. Based on the author’s observations while assigned to CFLCC, the EFSTs and EIOTs were specific enough to allow the DOCC to nominate targets to CFACC to strike by air assets or assign to subordinate units to accomplish by other means. Finally, each EFST and EIOT identified several Measures of Effectiveness (MOE) to help determine if the EFST, and ultimately the effects objective, was achieved.

CFLCC’s development of effects objectives during OIF displayed great progress toward EBT; however, there was not enough analysis of second and third order effects to be categorized as a true effects-based operation. Primarily due to a lack of time and personnel available, the CFLCC staff could not completely analyze all of the possible effects created by each targeting task. Some analysis was conducted on the psychological and systemic effects that some of the tasks would create; however, this was not conducted to a level required by the true definition of EBO.

Method of Assessment

The Army’s targeting focus changed fairly significantly between ODS and OIF. Based on lessons learned from ODS and other operations, the Army has emphasized the

importance of identifying what you want to achieve through the targeting process, as opposed to simply destroying enemy targets with no stated purpose. The CFLCC DOCC attempted to develop concrete metrics to determine the success or failure of a targeting objective through Measures of Effectiveness (MOE) (CFLCC 2004, 5).

The organization of CFLCC DOCC's effects objectives greatly contributed to their ability to determine if an objective was achieved or not. As discussed earlier, the DOCC used effects objectives to develop EFST's and EIOT's; however, each effects objective also had associated MOE's. The MOE detailed the activity or lack of activity that would indicate if the effects objective was being met. Each effects objective contained multiple MOE's, most of that were very objective and fairly easy to measure. The focus of the MOE was however, to provide CFLCC with a metric that would help determine if the desired effects were being achieved.

CFLCC's Measures of Effectiveness became critical during the combat assessment process. Combat assessment is "the determination of the overall effectiveness of force employment during military operations," and consists of BDA, munitions effectiveness assessment, and reattack recommendation (JP 3-60 2002, GL-5). Within the CFLCC DOCC, the Battle Management Section conducted combat assessment boards every twelve hours. The purpose of this board was to examine the targets that were attacked over the past twenty-four to forty-eight hours, determine the effects of those attacks, and maintain a continual assessment on the progress of each effects objective. The results of the combat assessment board were then presented at the Daily Effects Board to allow the senior CFLCC leaders to make decisions on when and where to allocate resources and when conditions have been met to transition to a subsequent

operation (CFLCC 2004, 2-4). The MOE provided the guidelines to determine if CFLCC was achieving the Joint Force Commander's objectives; however, this was not a flawless process.

Much like ODS, obtaining accurate BDA was very difficult and time consuming. Based on the author's observations during OIF, the members of the combat assessment board often did not receive enough information to make accurate assessments of the progress of each effects objective. When information did become available, it was often very late and did not significantly contribute to the 96-hour decision cycle used in the DOCC. The combat assessment board did not however, focus on the lack of information but applied all of the information and intelligence available to the MOE's to develop an estimated status of each effects objective.

Summary

After examining these principles of EBT as they were applied to Operations Desert Storm and Iraqi Freedom, it is helpful to refer back to the table of questions to determine how the principles were applied. Table 4 lists these questions and provides a simple answer to each based on the information provided in this chapter.

In both Persian Gulf conflicts, there was clear and deliberate nesting of targeting tasks with the JFC's objectives. This was derived from a methodical process of translating national aims into discrete, executable military tasks based on the commander's guidance and intent. This process took place in the planning of both conflicts from the national goals to military objectives at the operational and tactical levels. The facilitating factor to this hierarchical process was clearly stated national and military objectives of each conflict.

Table 4. Analysis of the Application of EBT Principles

DEVELOPMENT OF TARGETING TASKS	Desert Storm	Iraqi Freedom
1. Do the targeting tasks support the JFC's objectives?	Yes	Yes
1-1. Are the targeting tasks directly linked (nested) with the JFC's objectives?	Yes	Yes
1-2. Were the targeting tasks developed using a strategy-to-task method?	Yes	Yes
2. Were targeting tasks focused on accomplishing an objective or achieving a specific effect?	Objective	Effect
2-1. Was analysis conducted on what effects (negative effects) a targeting task would achieve?	No	Some
2-2. Was analysis conducted on the second or third order effects of a targeting task and how they would impact an objective?	No	No
METHOD OF ASSESSMENT		
3. How were the results of the targeting tasks assessed?	BDA	MOE
3-1. Did each targeting task have an associated method to determine success?	No	Yes
3-2. Was the method used to determine success focused on the desired effect or destruction of the enemy?	Dest. of enemy	Desired effect

With clear national goals, it is easier for senior military commanders to determine the specific effects they must achieve at different levels of war. The military commander does not have to interpret or predict the actions he thinks his higher headquarters wants him to execute. In turn, this allows the commander to issue clear tasks and guidance to his subordinate commanders. This clear articulation is very conducive to the application of EBT within military operations.

Based on the development of targeting tasks to support the JFC's objectives and ultimately, the national strategic goals, both Operations Desert Storm and Iraqi Freedom set the proper conditions for the application of EBT. If a commander completely understands the objectives he must accomplish, it facilitates his visualization of the conflict and allows him to issue clear guidance to his staff. In an effects-based operational concept, this guidance helps the targeting staff develop the effects that must be created. Through analysis of the causal linkage between the desired effects and specific targeting tasks, the staff can determine the specific tasks that must be accomplished. Although commanders developed definitive objectives and issued clear guidance, more effects-based principles must be applied in order to achieve an optimal EBT process.

The second principle of EBT is the focus of targeting tasks. In an effects-based model, targeting tasks are chosen based on their causal linkage to desired effects. In other words, the targeting tasks focus on achieving desired effects. This method of determining targeting tasks contrasts with choosing tasks because they support a specific objective with little or no analysis on the direct and indirect effects that they may achieve. The key component of this targeting focus is detailed analysis of all of the potential effects a task may achieve. This level of analysis was a shortfall of the targeting process during ODS and OIF.

During ODS, targeting staffs, specifically ARCENT, were focused on reducing the Iraqi ground forces to 50 percent strength. This focus indicates that the ARCENT staff was primarily concerned with attriting the enemy forces to a certain percentage rather focusing on the ability or intent of the enemy. An effects-based approach to

accomplishing this objective would have focused on eliminating certain functions or capabilities of the Iraqi ground forces, which does not necessarily require the destruction of half of their armored and artillery weapons.

The targeting process during OIF made great improvements toward EBT; however, there was still a lack of analysis of all of the potential effects of each targeting task. During OIF, the CFLCC targeting tasks did explicitly focus on achieving certain effects in order to support the accomplishment of operational objectives. This is evident in the wording and focus of their developed effects objectives. The shortfall, however, came in the analysis of indirect effects and potential undesired effects of each targeting task. This shortfall occurred primarily due to a lack of personnel to conduct a detailed analysis of all of the possible effects that each targeting task may create.

The final principle of EBT is the method used to assess the effectiveness of the targeting tasks. These methods of assessment can be a key indicator if targeting staffs used an effects-based approach. It is very evident if the criteria for success are focused on the destruction of enemy combat power or if they are focused on physical, functional, or psychological effects on the enemy.

During ODS, assessing the effectiveness of the attacks against Iraqi ground forces was a very difficult task. One of the contributing factors to its difficulty was the lack of a means to measure success. The ARCENT targeting cell did not develop possible actions or inactions they expected to see from the Iraqi ground forces if their targeting plan was being successful. These indicators would have been focused on attempting to determine Iraqi units' capability and willingness to defend against attacking coalition forces.

Instead, ARCENT primarily focused on determining the quantity and type of equipment destroyed.

The lack of developing measures of effectiveness created confusion and conflict between the Army and Air Force staffs and did not provide the JFC commander with an accurate assessment of when conditions were set to begin ground operations. The ARCENT staff developed different formulas to determine the reduction in Iraq's military capabilities. These formulas focused on the loss of combat vehicles, specifically armored vehicles and artillery pieces. Success was then achieved by destroying a certain percentage of a unit's vehicles. These formulas assumed that the enemy capabilities were directly proportional to the number of vehicles destroyed and resulted in assessments much less than the CENTAF assessments, which were more focused on a unit's capabilities. ARCENT's methodology did not take into account any second or third order effects or the elimination of a unit's capability prior to reaching the desired destruction percentage.

The most significant evolution in EBT from ODS to OIF was in measures of effectiveness. The CFLCC staff spent many hours determining the how they would assess the effectiveness of attacks against Iraqi ground forces. The result was a list of specific measures of effectiveness (MOE) that supported each effects objective. These MOE's primarily focused on the Iraqi forces' ability and willingness to conduct combat operations; however, some focused on the destruction of combat systems. With numerous MOE's that supported each effects objective, the methods that focused on destruction of combat systems complimented the methods that focused on a specific capability. These MOE's proved to be very useful in conducting combat assessment, focusing intelligence

collection assets, and providing an objective tool to assist the commander with making decisions.

As discussed throughout this chapter, there were several aspects of ODS and OIF that used effects-based principles. During ODS, the Air Force planning staff seemed to grasp the concepts more than the Army staff; however, during OIF the Army staff made a lot of progress toward operating in a manner focused on achieving effects. The next chapter concludes the application of EBT as discussed above and provides recommendations on how to improve the application of effects-based concepts in Army and Joint operations.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Chapter 4 applied two key principles of EBT to the targeting process that was conducted during ODS and Iraqi Freedom. These principles included the methods used to create the targeting tasks and the development of a method to determine success that focuses on the desired effect. The presence of these principles does not imply that an effects-based methodology was used to its complete potential; however, they are indicators that the development of targeting tasks in support of an operation was focused on creating effects as opposed to accomplishing an objective.

Army planners were successful in both conflicts in nesting the targeting tasks with the JFC's objectives. This was achieved using the process of translating national aims into discrete, executable military tasks based on the commander's guidance and intent. A contributing factor to this process was clearly stated national and military objectives of each conflict. This clear articulation of goals and objectives allowed targeting planners to focus their efforts on developing tasks that supported the military and national objectives. This environment, with clearly identified goals, is very conducive to the application of EBT.

The next principle in development of EBT tasks is the *focus* of tasks. Were the targeting tasks focused on achieving desired effects? The key component of this targeting focus is detailed analysis of all of the potential effects a task may achieve. This level of analysis was a shortfall of the targeting process during ODS and OIF.

The ARCENT staff during ODS was focused on reducing the Iraqi ground forces to 50 percent strength. An effects-based approach to accomplishing this objective would have focused on eliminating certain functions or capabilities of the Iraqi ground forces, which does not necessarily require the destruction of half of their armored and artillery weapons. The targeting process during OIF made great improvements toward EBT; however, there was still a lack of analysis of all of the potential effects of each targeting task. During OIF the CFLCC targeting tasks did explicitly focus on achieving certain; however, due to a lack of personnel they did not conduct detailed analysis of second and third order effects.

The final principle of EBT is the method used to assess the effectiveness of the targeting tasks. During ODS, ARCENT did not develop specific measures of effectiveness, but relied on BDA to predict effects they have achieved. The lack of developing MOE created confusion and conflict between the Army and Air Force staffs and did not provide the JFC commander with an accurate assessment of when conditions were set to begin ground operations.

The most significant evolution in EBT from ODS to OIF was in measures of effectiveness. The CFLCC staff created a list of specific MOE that supported each effects objective. These MOE primarily focused on the Iraqi forces' ability and willingness to conduct combat operations and proved to be very useful in conducting combat assessment, focusing intelligence collection assets, and providing an objective tool to assist the commander with making decisions.

The United States Army has made great strides in the application of EBT from ODS to the present. Properly applied effects-based principles will continue to magnify

our advantage of information superiority against an unpredictable enemy. EBT provides a framework to capitalize on the improved capabilities of technology and information systems on the battlefield. OIF has demonstrated the utility in effects-based principles; however, we have not recognized the complete potential of their application.

Recommendations

Effects-based principles offer incredible potential to the United States Army in conducting effective and efficient operations. The Army's current transformation facilitates the implementation of EBO into Army doctrine. These new organizations have increased capabilities with a decrease in assets while EBO provides a process to efficiently apply those capabilities in a synchronized, synergistic manner. EBO provides an operational framework for the current direction of the Army; however, some fundamental changes within the Army must occur to achieve their full potential.

Achieving a more effects-based targeting concept is currently the goal of the Army fire support community. Headquarters are developing fire support staffs to employ lethal and nonlethal fires to achieve specific effects in support of maneuver objectives. Several headquarters have expanded the Fire Support Element or DOCC and have renamed them the Fires and Effects Coordination Cells (FECC). The basic expansion of the FECC is the inclusion of Information Operations representatives to facilitate the synchronization of lethal and nonlethal effects and some intelligence targeting representatives (Hill and Trout 2000,6). This organizational change to the FECC is a step in the right direction; however, the fire support and information operations elements are not the only resources that can achieve effects on the battlefield.

To develop a truly effects-focused atmosphere, the entire organization should be focused on achieving effects versus objectives. Rather than identifying essential tasks, commanders will identify the essential effects that must be created in order to allow his higher headquarters to accomplish their objective. This process would be very similar to the targeting process used during OIF by the CFLCC DOCC; however, it would include effects to be achieved by each battlefield operating system(BOS). Once the commander identified the essential effects that must be created, the staff identifies how each BOS can contribute to achieving that effect. An illustration of this recommended process is in figure 4.

EBO can be applied at each level of war. Using each BOS to achieve an effect is an example at the tactical level. The operational level could develop effects by functions of a land component command and the strategic level could use the instruments of national power, for example. Regardless of the specific method used, the process must focus on achieving effects that will result in the overall objectives and then determining the best tasks to achieve those effects.

Determining the correct effects to achieve and the effect each task will create is the next challenge of EBO. EBO requires very detailed analysis of the possible effects a task may achieve, to include second and third order effects. Predicting these indirect effects requires intimate knowledge of the operational environment, specifically on the enemy. To effectively operate in an effects-based manner, the Army must create organizational staffs that have the ability to predict the effects of specific tasks in complex operational environments.

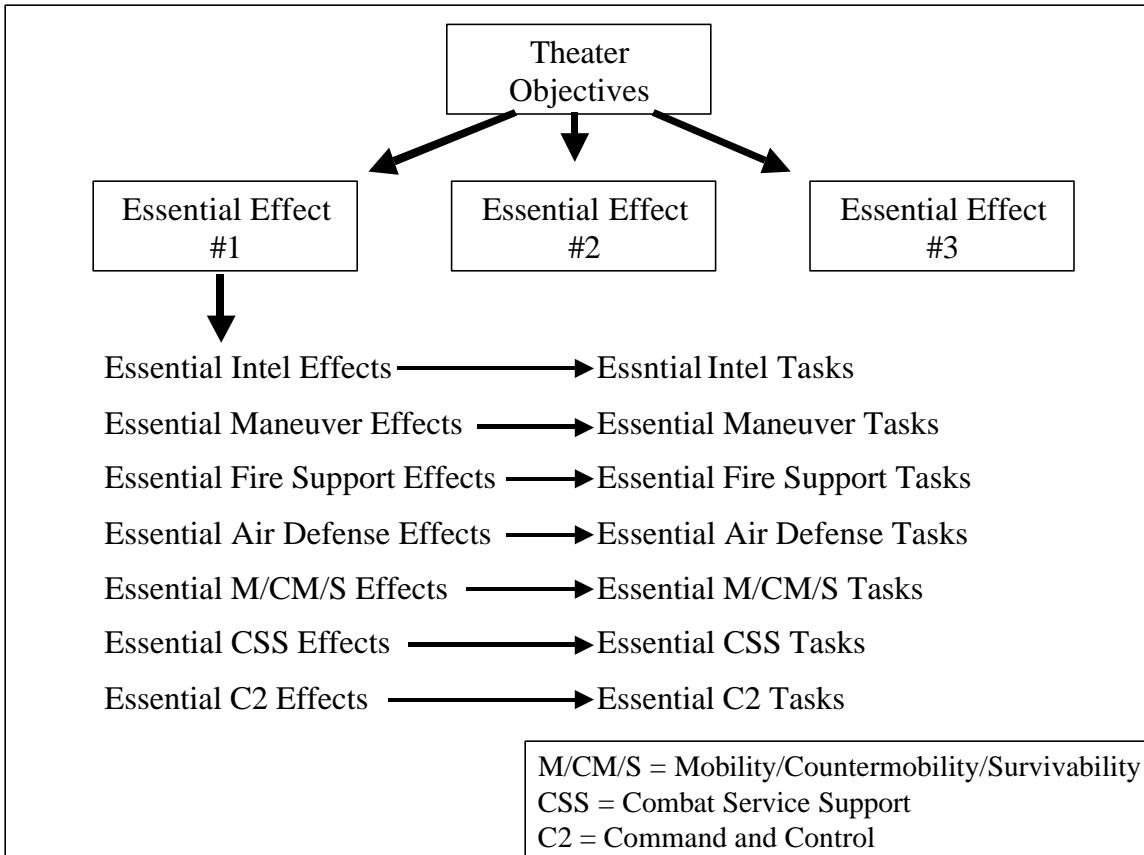


Figure 4. Effects-Based Operations by BOS

This predictive analysis will require a lot of time and quality personnel. As demonstrated previously, the lack of this analysis was the major deficiency in principles of EBT within CFLCC during OIF. It is possible to develop predictive computer software to assist Army staffs; however, there is no such software currently fielded throughout the Army. A computer program will decrease the time required to conduct effects analysis; however; to fully integrate EBO into Army doctrine, we must have officers with the ability to see the big picture.

Due to the synergistic and integrated nature of EBO, the Army must develop leaders that are capable of thinking conceptually. Leaders in an effects-based

environment must understand the impact that their decisions will have on each dimension of the operational environment. This greatly increases the required knowledge base of military officers outside the realm of military operations. Officers must be able to understand and analyze how different actions create effects and how they will impact on achieving operational and strategic objectives. Army officers must be able to realize what they don't know about a situation, visualize a non-congruent battlespace, and conceptualize different perspectives to situations. This is a huge task in Army leader development and must begin at the earliest stages of military education.

EBO has the potential to increase the effectiveness of future military operations and provide a concept for military commanders and staffs to approach any situation and achieve the desired results in the most efficient manner. The Army continues to integrate effects-based concepts into the targeting process and must expand these concepts into all operations. EBO provides the framework to produce unprecedented synergies within the interagency and joint communities; however, this will require changes in organizations and leader development. Coupled with the current Army organizational transformation and the nature of current military operations, the United States Army is poised to successfully integrate effects-based concepts into operations and doctrine.

Areas for Further Research

Based on the evolving developments in EBT and EBO, it would be beneficial to further research how these concepts can best be integrated into the military decision making process and the targeting process and if EBO would require these processes to change. Additionally, as this thesis examines EBT during combat operations in a contiguous, linear environment, it would be very interesting to see how EBT concepts are

applied to noncontiguous operations like the US is currently facing in Iraq. Analysis could be conducted on the application of EBT principles and the impact EBT has had on planning and execution offensive, stability, and support operations. Finally, this thesis focuses on the application of EBT at the operational level of war. It would be beneficial to research how EBT impacts operations at the tactical level.

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